

INDEX TO LECTURE NOTES

(v4.5)

Active array	III-79	Chaff	IV-105
Airborne MTI	II-38	Chirp	III-25
Adaptive antenna	IV-140	Chirp complications	III-33
Ambiguity function	III-12	Circulators	II-5, III-114
AN/APS-31	IV-18	Clutter area	II-51
AN/APS-200	II-64	Clutter attenuation	II-91
Angel echoes	IV-107	Clutter improvement factor	II-94
Angular accuracy	III-23	Clutter reflection	II-53
AN/PPS-6	IV-16	Clutter return	II-48
AN/SPS-40	IV-20	Clutter spectrum	II-55
AN/SPS-64	IV-12	Coherent pulse train	II-83
AN/TPQ-37	I-5, IV-2	Coherent sidelobe canceler	IV-136
AN/SPS-67	IV-14	Complex signals	III-11
Antenna arrays	III-53	Conical scan antenna	II-104
Antenna as radar target	I-114	Coordinate systems	I-41
Antenna far field	III-41	Cosecant-squared pattern	III-68
Antenna gain	I-21	Cross eye jamming	IV-132
Antenna imperfections	III-104	CW radar problems	II-28
Antenna pattern control	III-65	dBZ	IV-91
Antenna polarization	I-22, III-46	Decibel (dB)	I-53
Antenna radomes	III-101	Delay Line canceler	II-67
Antenna refresher	III-38	Diffuse scattering	II-53
Antenna scanning modulation	II-106	Digital pulse compression	III-34
Antenna temperature	II-9, III-74	Digital beamforming	III-96
Aperture efficiency	III-67	Directive gain	III-43
Apparent Range	II-44	Discrete Fourier transform	II-86
Array factor	III-54	Doppler filtering using DFT	II-83
Average power	I-106	Doppler frequency shift	II-20
B-2	I-138	Dwell time	I-103
Barker sequences	III-35	Eclipsing	II-41
Beam solid angle	III-44	Effective temperature	II-8, I-59
Beamshape loss	II-7	Electromagnetic waves	I-6
Beam coupling loss	III-37	Electromagnetic spectrum	I-24
Beamwidth limited	II-51	Element factor	III-54
Beat frequency	II-34	Equivalent earth radius	II-125
Bistatic radar	IV-109	F-117	I-137
Blind speeds	II-67	False alarm	I-93
Bragg scatter	IV-95	Filters	I-86, III-116
Burnthrough range	I-63	Fluctuating targets	I-123
Carrier modulation	I-79	FMCW	II-31
Central limit theorem	I-72	FMCW complications	II-35
FMCW range determination	II-33	Noise figure	I-65, II-8
Fourier transform	I-47	Noise figure from loss	II-12
Frame area	II-101	Noise in cascaded network	II-10
Free electron laser	III-138	Noise power spectral density	III-3
Glint	II-115	Multiple PRFs	II-42, II-71
Grating lobe	III-56	Non-coherent pulse train	II-98
Ground penetrating radar	IV-149	Number of pulses on target	I-103
Ground plane image	III-60		

Harmonic radar	IV-29	Nutating feed	II-105
Heterodyning/Homodyning	III-1, II-22	Nyquist sampling rate	II-82
HF radars	IV-51	OTH radar parameters	IV-54
Hitchhiker radar	IV-110	Parabolic antenna	III-47
I and Q representation	II-26, II-74	Path gain factor	II-118
Imaging of moving targets	IV-65	Patriot radar	IV-7
Integration efficiency/improvement	I-99	PDF	I-66
Intermodulation products	III-119	Photonics	III-95
Inverse SAR (ISAR)	IV-49	Police radar	I-60
Isotropic surface	II-53	Power density	I-12, I-35
Klystron	III-132	PPI	I-42, IV-22
Laser radar	IV-141	PRF	I-43
Linear system	I-85	Probability of detection	I-55, I-95
Loss due to absorption	II-3	Probability of false alarm	I-55, I-93
Loss due to rain	II-4	Pulse burst mode	II-90
Loss from mixer conversion	II-12	Pulse compression	III-24
Low angle tracking	II-117	Pulse Doppler Radar	II-37
Low noise amplifier (LNA)	II-123	Pulse train	I-43, I-84
Low/Ultra-low sidelobes	III-64	Pulse width limited	II-50
LPI radar	III-63	Radar classifications	I-32
Magic Tee	III-115	Radar functions	I-31
Magnetron	III-129	Radar horizon	II-126
Mainbeam clutter	II-56	Radar range equation (RRE)	I-34
Matched filters	III-4	Radar tracking	II-104
Matched filter max SNR out	III-7	Radiation by line source	III-51
Maximum detection range	I-38	Radiometers	IV-23
Method of images	III-60	Radome	III-101
Mixers	III-117	Range accuracy	III-17
MMIC	IV-97	Range ambiguity	I-44, II-42
Modulation (mixing)	I-79	Range gate	I-45, II-89
Monopulse antenna	III-98	Range resolution	I-46, III-30
Monopulse tracking	II-110	Rayleigh distribution	I-70
Monopulse tracking errors	II-114	RCS	I-108
MTI improvement factors	II-91	RCS of cylinder	I-110
MTI limitations	II-92	RCS of sphere	I-111
MTI Radar	II-37	RCS reduction methods	I-129
Multiple beam antennas	III-76	Receiver types	III-1
Multipath	II-117	Reflection coefficient	I-15
Noise bandwidth	I-58	Refraction	II-124
		Resonance	IV-79, IV-105

Rician distribution	I-89	Ultra-wideband radar	IV-69
RRE	I-34	Ultrasonic radar	IV-83
RRE for fluctuating targets	I-127	Unambiguous range	I-44, II-42
RRE for pulse integration	I-105	Uncertainty relation	III-22
RRE SAR	IV-46	Velocity accuracy	III-21
Sampling theorem	I-81	Velocity ambiguity	II-46
SAR	IV-31	Weather radar	IV-85
SAR image resolution	IV-35, IV-44		
SAR, focused	IV-38		
SAR, motion compensation	IV-43		
SAR, speckle	IV-47		
SAR, unfocused	IV-36		
Scattering matrix	I-112		
SCR-270 radar	I-3, IV-9		
Sea shadow	I-139		
Sea states	II-62		
Search detection range	II-103		
Search radar equation	II-100		
Search volume	III-101		
Sequential lobing	II-104		
Sidelobe clutter	II-57		
Signal-to-jam ratio (SJR)	I-64		
Signal-to-clutter ratio (SCR)	II-52		
Signal-to-noise ratio (SNR)	I-59		
Smart antenna, smart skins	III-102, III-105		
SNR using integration	I-106		
Solid angles	III-40		
Spillover efficiency	III-49		
SPY-1 radar	IV-11		
Staggered PRFs	II-42, II-71		
Stepped frequency radar	IV-59		
Surface clutter	II-49		
Swerling types	I-123		
Synchronous detection	II-74, II-78		
Synchronous receiver	II-77		
System temperature	I-59		
Tapered aperture distributions	III-66		
Tapped delay line	III-9		
Target reflectivity	IV-65		
Thermal Noise	I-54		
Time delay ranging	I-30		
Time on target	I-103, II-102		
Transformation of variables	I-73		
Transmission lines	II-5, III-108		
Transmitter characteristics	III-129		
True Time delay scanning	III-91		